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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/733,570	12/12/2003	James Richard Weber	08350.1649-01000	1629

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EXAMINER

ALI, HYDER

ART UNIT	PAPER NUMBER
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3747

DATE MAILED: 07/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Pat

Office Action Summary	Application No. 10/733,570	Applicant(s) WEBER ET AL.	
	Examiner HYDER ALI	Art Unit 3747	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 March 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 and 24-67 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-4, 6-13, 15-17, 19, 24, 25, 28, 29, 31, 32 and 34-67 is/are allowed.
- 6) ☒ Claim(s) 5, 14, 18, 26, 27, 30 and 33 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>3/29/05</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 5 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beck et al (US 6,273,076) in view of Bredy (US 6,302,076).

Beck et al discloses a variable compression ratio internal combustion engine 50, comprising: an engine block defining at least one cylinder 52; a head 54 connected with said engine block, including an air intake port 66, and an exhaust port 68; a piston 56 slidable in each cylinder; a combustion chamber 60 being defined by said head, said piston 56, and said cylinder; an air intake valve 62 movable to open and close the air intake port; an air supply system including at least one turbocharger 90 fluidly connected to the air intake port 66; a fuel supply system 74 operable to inject fuel into the combustion chamber 60 at a selected timing; a variable intake valve closing mechanism configured to keep the intake valve 62 open by operation of the variable intake valve closing mechanism.

Beck et al does not disclose how much the intake valve 10 closing is delayed. However, Bredy discloses delaying the closing of the intake valve beyond the halfway point of the compression stroke. See col. 10, lines 45-55; col. 4, lines 60-67; col. 5, lines 1-5. It would have been obvious to one of ordinary skill in the art to have delayed the

closing of the intake valve beyond the halfway point of the compression stroke because this would have further reduced the compression ratio and improved engine efficiency. Furthermore, the variable valve timing arrangement of Beck's valves may include the structure of a cam and rocker arm as such structures are well known in devices for varying valve timing are well known in the art and considered to be an obvious matter of design choice.

As to claim 26, Bredy discloses the variable valve closing mechanism is operated hydraulically.

2. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Beck et al (US 6,273,076) in view of Bredy (US 6,302,076) as applied to claim 5 above, and further in view of Backlund et al (US 5,408,979).

The combine references of Beck et al in view of Bredy show all the limitations as cited above except, two turbochargers in series with each other.

Beckland et al discloses dual turbochargers 1,2 in series with each other. It would have been an obvious substitution of equivalents to have modified Beck's engine such that the hydraulically driven supercharger was replaced by a second turbocharger as taught by Becklund.

3. Claims 14,18,30,33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beck et al (US 6,273,076) in view of Bredy (US 6,302,076) and Backlund et al (US 5,408,979).

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The combine references of Beck et al in view of Bredy show all the limitations as cited above except, two turbochargers connected with each other as claimed in claims 14,18.

Beckland et al discloses dual turbochargers 1,2. It would have been an obvious substitution of equivalents to have modified Beck's engine such that the hydraulically driven supercharger was replaced by a second turbocharger as taught by Becklund.

Furthermore, it should be noted that Beck et al teach an intercooler.

As to Claim 30, Bredy discloses operating an air intake valve 10 includes hydraulically holding the intake valve 10 open.

As to Claim 33, Bredy discloses the engine is configured to hydraulically hold the intake valve 10 open.

Allowable Subject Matter

Claims 1-4,6-13,15-17,19,24,25,28,29,31,32 and 34-67 are allowed.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HYDER ALI whose telephone number is (571) 272-4836. The examiner can normally be reached on M-F (8:30-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, HENRY YUEN can be reached on (571) 272-4856. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Hyder Ali

ha


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